

Name: _____ Date: _____ Period: _____

Virtual Blood Typing Simulation

1. Go to the following URL:

<http://nobelprize.org/educational/medicine/landsteiner/index.html>

Background:

2. Under the green “Reading” tab, click “Blood Groups, Blood Typing, and Blood Transfusions.” Read through the material and answer the following questions.

1. Who discovered the human blood groups?
2. How much blood does a typical human have circulating throughout the body?
3. List and describe the four components of blood.
4. What causes the differences in the human blood groups?
5. What are antigens? Where are they found?
6. What are antibodies? Where are they found?
7. Describe the four human blood groups:
 - a. A:
 - b. B:
 - c. AB:
 - d. O (null):
8. What is the Rh factor and where is it found?

9. Based on the human blood groups, there are 8 kinds of blood types. For each blood type, determine which antigen or antigens are found on the red blood cells. Also, determine which antibodies are present in plasma.

Blood Type	Antigens Present	Antibodies Present
A Rh⁺		
A Rh⁻		
B Rh⁺		
B Rh⁻		
AB Rh⁺		
AB Rh⁻		
O Rh⁺		
O Rh⁻		

10. How do you determine what blood group a person belongs?

11. What is agglutination?

12. What problems arise when agglutination occurs after a blood transfusion?

13. People with which blood group are considered universal donors? Why is this so?

14. People with which blood group are considered universal receivers? Why is this so?

15. Study the chart and answer the following questions:

- a. Can a person with O Rh⁻ receive O Rh⁺ blood?
- b. A person with A Rh⁺ blood can receive blood from people with which blood group(s)?
- c. A person with B Rh⁻ blood can donate to people with which blood group(s)?
- d. A person with AB Rh⁻ can receive blood from people with which blood group(s)?

Blood Typing Game

1. Click “Play the Blood Typing Game.”
2. Click the arrow labeled “Play.” **TURN THE SOUND OFF SO AS NOT TO DISTRACT YOUR CLASSMATES!**
3. Watch the intro and read what the doctor has to say.
4. Click on the first patient (the guy with the pink hair).
5. You’ll have to figure out his blood type. Click the syringe located under the “Blood Typing Kit” to the right. Drag the syringe to his arm. It should fill with blood. Drag the syringe to the “A” test tube under the “Blood Typing Kit” to the right. Release your cursor to deposit some of the blood in the test tube. Drag the syringe to the “B” test tube and release the cursor to deposit some of the blood in the test tube. Drag the syringe to the “Rh” test tube and release the cursor to deposit the rest of the blood in the test tube.
6. What is this patient’s blood type?
7. He needs two bags of blood. What kind of blood did you give him? Why did you choose these blood types?
8. Select the next patient (the older gentleman). Repeat the procedure in step 5 to determine his blood type. What is his blood type?
9. He only needs one bag of blood. What kind of blood did you give him? Why did you choose this blood type?
10. Select the last patient (the woman). Repeat the procedure in step 5 to determine her blood type. What is her blood type?
11. She needs a lot of blood. How many bags of blood did you give her? What kind of blood did you give her? Why did you choose these blood types?